



SEQUENCE LISTING

<110> TANAKA, YOSHIKAZU
ONO, EIICHIRO
NAKAMURA, NORIKO
MIZUTANI, MASAKO

<120> METHOD FOR PRODUCING YELLOW FLOWER BY CONTROLLING
FLAVONOID SYNTHETIC PATHWAY

<130> 47237.5008/00US

<140> 10/583,110

<141> 2006-06-15

<150> PCT/JP2004/019461

<151> 2004-12-17

<150> JP 2003-420046

<151> 2003-12-17

<160> 70

<170> PatentIn Ver. 3.3

<210> 1

<211> 1422

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)..(1371)

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 1

atg gga gaa gaa tac aag aaa aca cac aca ata gtc ttt cac act tca	48
Met Gly Glu Glu Tyr Lys Lys Thr His Thr Ile Val Phe His Thr Ser	
1 5 10 15	

gaa gaa cac ctc aac tct tca ata gcc ctt gca aag ttc ata acc aaa	96
Glu Glu His Leu Asn Ser Ser Ile Ala Leu Ala Lys Phe Ile Thr Lys	
20 25 30	

cac cac tct tca atc tcc atc act atc atc agc act gcc ccc gcc gaa	144
His His Ser Ser Ile Ser Ile Thr Ile Ile Ser Thr Ala Pro Ala Glu	
35 40 45	

tct tct gaa gtg gcc aaa att att aat aat ccg tca ata act tac cgc	192
Ser Ser Glu Val Ala Lys Ile Ile Asn Asn Pro Ser Ile Thr Tyr Arg	
50 55 60	

ggc ctc acc gcg gta gcg ctc cct gaa aat ctc acc agt aac att aat	240
Gly Leu Thr Ala Val Ala Leu Pro Glu Asn Leu Thr Ser Asn Ile Asn	
65 70 75 80	

aaa aac ccc gtc gaa ctt ttc ttc gaa atc cct cgt cta caa aac gcc	288
Lys Asn Pro Val Glu Leu Phe Phe Glu Ile Pro Arg Leu Gln Asn Ala	
85 90 95	
aac ctt cga gag gct tta cta gat att tcg cga aaa tcc gat atc aaa	336
Asn Leu Arg Glu Ala Leu Leu Asp Ile Ser Arg Lys Ser Asp Ile Lys	
100 105 110	
gca tta atc atc gat ttc ttc tgc aat gcg gca ttt gaa gta tcc acc	384
Ala Leu Ile Ile Asp Phe Phe Cys Asn Ala Ala Phe Glu Val Ser Thr	
115 120 125	
agc atg aac ata ccc act tac ttc gac gtc agt ggc ggc gct ttt ctc	432
Ser Met Asn Ile Pro Thr Tyr Phe Asp Val Ser Gly Gly Ala Phe Leu	
130 135 140	
ctc tgc acg ttt ctc cac cac ccg aca cta cac caa act gtt cgt gga	480
Leu Cys Thr Phe Leu His His Pro Thr Leu His Gln Thr Val Arg Gly	
145 150 155 160	
gac att gcg gat ttg aac gat tct gtt gag atg ccc ggg ttc cca ttg	528
Asp Ile Ala Asp Leu Asn Asp Ser Val Glu Met Pro Gly Phe Pro Leu	
165 170 175	
att cac tcc tct gat tta cca atg agt ttg ttt tat cgt aag act aat	576
Ile His Ser Ser Asp Leu Pro Met Ser Leu Phe Tyr Arg Lys Thr Asn	
180 185 190	
gtt tac aaa cac ttt cta gac act tcc tta aac atg cgc aaa tcg agt	624
Val Tyr Lys His Phe Leu Asp Thr Ser Leu Asn Met Arg Lys Ser Ser	
195 200 205	
ggg ata ctc gtg aac acg ttt gtt gcg ctc gag ttt cga gct aag gaa	672
Gly Ile Leu Val Asn Thr Phe Val Ala Leu Glu Phe Arg Ala Lys Glu	
210 215 220	
gct ttg tcc aac ggt ttg tac ggt cca act ccg cct ctt tat tta ctt	720
Ala Leu Ser Asn Gly Leu Tyr Gly Pro Thr Pro Pro Leu Tyr Leu Leu	
225 230 235 240	
tca cat aca att gcc gaa ccc cac gac act aaa gtg ttg gta aac caa	768
Ser His Thr Ile Ala Glu Pro His Asp Thr Lys Val Leu Val Asn Gln	
245 250 255	
cac gaa tgc cta tca tgg ctt gat ttg cag cct agt aaa agc gtg att	816
His Glu Cys Leu Ser Trp Leu Asp Leu Gln Pro Ser Lys Ser Val Ile	
260 265 270	
ttc ctt tgt ttc gga aga aga gga gcg ttc tca gca caa cag ttg aaa	864
Phe Leu Cys Phe Gly Arg Arg Gly Ala Phe Ser Ala Gln Gln Leu Lys	
275 280 285	
gaa att gcg ata ggg ttg gag aag agt gga tgt cga ttt ctt tgg ttg	912
Glu Ile Ala Ile Gly Leu Glu Lys Ser Gly Cys Arg Phe Leu Trp Leu	
290 295 300	

```

gcc cgc att tca ccg gag atg gac tta aat gcg ctt ctg ccg gag ggt 960
Ala Arg Ile Ser Pro Glu Met Asp Leu Asn Ala Leu Leu Pro Glu Gly
305          310          315          320

ttt cta tcg aga act aaa gga gta ggg ttt gtg aca aac aca tgg gtg 1008
Phe Leu Ser Arg Thr Lys Gly Val Gly Phe Val Thr Asn Thr Trp Val
          325          330          335

ccg caa aaa gag gtg ttg agt cat gat gca gtg ggg ggg ttt gtg act 1056
Pro Gln Lys Glu Val Leu Ser His Asp Ala Val Gly Gly Phe Val Thr
          340          345          350

cat tgc ggg tgg agt tcg gtt ctt gaa gcg ctg tcg ttc ggt gtc ccg 1104
His Cys Gly Trp Ser Ser Val Leu Glu Ala Leu Ser Phe Gly Val Pro
          355          360          365

atg att ggt tgg ccg ttg tac gca gag cag agg atc aat agg gtg ttc 1152
Met Ile Gly Trp Pro Leu Tyr Ala Glu Gln Arg Ile Asn Arg Val Phe
          370          375          380

atg gtg gag gaa ata aag gtg gcg ctg cca ttg gat gag gaa gat gga 1200
Met Val Glu Glu Ile Lys Val Ala Leu Pro Leu Asp Glu Glu Asp Gly
385          390          395          400

ttt gtg acg gcg atg gag ttg gag aag cgc gtc agg gag ttg atg gag 1248
Phe Val Thr Ala Met Glu Leu Glu Lys Arg Val Arg Glu Leu Met Glu
          405          410          415

tcg gta aag ggg aaa gaa gtg aag cgc cgt gtg gcg gaa ttg aaa atc 1296
Ser Val Lys Gly Lys Glu Val Lys Arg Arg Val Ala Glu Leu Lys Ile
          420          425          430

tct aca aag gca gcc gtg agt aaa ggt gga tcg tcc ttg gct tct ttg 1344
Ser Thr Lys Ala Ala Val Ser Lys Gly Gly Ser Ser Leu Ala Ser Leu
          435          440          445

gag aag ttc atc aac tcg gtc act cgt taaagtttct tactcaatat 1391
Glu Lys Phe Ile Asn Ser Val Thr Arg
          450          455

atggtacatc gggttaacta ccaaatttta t 1422

```

<210> 2

<211> 457

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic protein

<400> 2

```

Met Gly Glu Glu Tyr Lys Lys Thr His Thr Ile Val Phe His Thr Ser
  1              5              10              15

```

```

Glu Glu His Leu Asn Ser Ser Ile Ala Leu Ala Lys Phe Ile Thr Lys
      20              25              30

```

His His Ser Ser Ile Ser Ile Thr Ile Ile Ser Thr Ala Pro Ala Glu
 35 40 45
 Ser Ser Glu Val Ala Lys Ile Ile Asn Asn Pro Ser Ile Thr Tyr Arg
 50 55 60
 Gly Leu Thr Ala Val Ala Leu Pro Glu Asn Leu Thr Ser Asn Ile Asn
 65 70 75 80
 Lys Asn Pro Val Glu Leu Phe Phe Glu Ile Pro Arg Leu Gln Asn Ala
 85 90 95
 Asn Leu Arg Glu Ala Leu Leu Asp Ile Ser Arg Lys Ser Asp Ile Lys
 100 105 110
 Ala Leu Ile Ile Asp Phe Phe Cys Asn Ala Ala Phe Glu Val Ser Thr
 115 120 125
 Ser Met Asn Ile Pro Thr Tyr Phe Asp Val Ser Gly Gly Ala Phe Leu
 130 135 140
 Leu Cys Thr Phe Leu His His Pro Thr Leu His Gln Thr Val Arg Gly
 145 150 155 160
 Asp Ile Ala Asp Leu Asn Asp Ser Val Glu Met Pro Gly Phe Pro Leu
 165 170 175
 Ile His Ser Ser Asp Leu Pro Met Ser Leu Phe Tyr Arg Lys Thr Asn
 180 185 190
 Val Tyr Lys His Phe Leu Asp Thr Ser Leu Asn Met Arg Lys Ser Ser
 195 200 205
 Gly Ile Leu Val Asn Thr Phe Val Ala Leu Glu Phe Arg Ala Lys Glu
 210 215 220
 Ala Leu Ser Asn Gly Leu Tyr Gly Pro Thr Pro Pro Leu Tyr Leu Leu
 225 230 235 240
 Ser His Thr Ile Ala Glu Pro His Asp Thr Lys Val Leu Val Asn Gln
 245 250 255
 His Glu Cys Leu Ser Trp Leu Asp Leu Gln Pro Ser Lys Ser Val Ile
 260 265 270
 Phe Leu Cys Phe Gly Arg Arg Gly Ala Phe Ser Ala Gln Gln Leu Lys
 275 280 285
 Glu Ile Ala Ile Gly Leu Glu Lys Ser Gly Cys Arg Phe Leu Trp Leu
 290 295 300
 Ala Arg Ile Ser Pro Glu Met Asp Leu Asn Ala Leu Leu Pro Glu Gly
 305 310 315 320
 Phe Leu Ser Arg Thr Lys Gly Val Gly Phe Val Thr Asn Thr Trp Val
 325 330 335

Pro Gln Lys Glu Val Leu Ser His Asp Ala Val Gly Gly Phe Val Thr
 340 345 350
 His Cys Gly Trp Ser Ser Val Leu Glu Ala Leu Ser Phe Gly Val Pro
 355 360 365
 Met Ile Gly Trp Pro Leu Tyr Ala Glu Gln Arg Ile Asn Arg Val Phe
 370 375 380
 Met Val Glu Glu Ile Lys Val Ala Leu Pro Leu Asp Glu Glu Asp Gly
 385 390 395 400
 Phe Val Thr Ala Met Glu Leu Glu Lys Arg Val Arg Glu Leu Met Glu
 405 410 415
 Ser Val Lys Gly Lys Glu Val Lys Arg Arg Val Ala Glu Leu Lys Ile
 420 425 430
 Ser Thr Lys Ala Ala Val Ser Lys Gly Gly Ser Ser Leu Ala Ser Leu
 435 440 445
 Glu Lys Phe Ile Asn Ser Val Thr Arg
 450 455

<210> 3

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 3

gaaatgggtcg gattggctgg g

21

<210> 4

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 4

acctccaccc caactttcag g

21

<210> 5

<211> 24

<212> DNA

<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 5
 gatgcataat ttggctagaa aagc 24

 <210> 6
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 6
 ccaatttgcc aaacactttc c 21

 <210> 7
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 7
 tgcctcgaat gggtgagcac g 21

 <210> 8
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 8
 ctctcactct cacaccg 18

 <210> 9
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 9
 cacgaatgct tagcatggct c 21

<210> 10
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 10
 cttattgccc actgaaaccc c 21

<210> 11
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 11
 tgtctgaatt ggcttgattc c 21

<210> 12
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 12
 aaccacaga aaccctgtt c 21

<210> 13
 <211> 1446
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide construct

<400> 13
 atgggaaaac ttcacattgc cttatttcca gttatggctc atggtcacat gatcccaatg 60
 ttggacatgg ccaagctctt tacctcaaga ggcatacaaa caacaatcat ttcgactctc 120
 gccttcgctg atccgataaa caaagctcgt gattcgggcc tcgatattgg actaagcatc 180
 ctcaaattcc caccagaagg atcaggaata ccagatcaca tggtagcct tgatctagtt 240
 actgaagatt ggctcccaaa gtttggtgag tcattagtct tattacaaga gccagttgag 300
 aagcttatcg aagaactaaa gctcgactgt ctcgtttccg acatgttctt gccttggaca 360
 gtcgattgtg cggctaagtt cgggtattccg aggttggttt tccacggaac gagcaacttt 420

```

gcgttgtgtg cttcggagca aatgaagctt cacaagcctt ataagaatgt aacttctgat 480
actgagacat ttgttatacc ggatttcccg catgagctga agtttgtgag gactcaagtg 540
gctccgtttc agcttgcgga aacggagaat ggatttctca agttgatgaa acagatgacg 600
gagtctgttg gtagaagcta cgggtgtgtg gttaacagtt tttatgagct cgagtcgact 660
tatgtggatt attacagaga ggttttggtt agaaagtcct ggaatatagg gcctctgttg 720
ttatccaaca atggcaatga ggaaaaagta caaaggggaa aggaatctgc gattggcgaa 780
cacgaatgct tggcttggtt gaattccaag aagcagaatt cggttgttta cgtttgtttt 840
ggaagtatgg cgacttttac tccagcgag ttgcgcgaaa ctgcgattgg actcgaggaa 900
tcaggccaag agttcatttg ggtagttaa aaggccaaaa acgaagaaga aggaaaagga 960
aaagaagaat ggctgccaga aaattttgag gaaagagtga aagatagagg cttgatcata 1020
agaggatggg cgccgcaatt gttgatact gatcatcctg cggtaggagc tttcgtgacg 1080
cattgtggat ggaattcgac gttggaagga atatgcgccg gtgtgcctat ggtgacttgg 1140
ccagttttcg cagagcagtt tttcaatgag aagtttgtga cagaggtttt ggggaccggt 1200
gtttcggttg ggaataagaa gtggctaagg gcagcaagtg aagggtgtgtc gagggaggca 1260
gtgacgaacg cgggtgcagcg tgttatggtg ggagaaaatg cgtcggagat gagaaagcga 1320
gcgaagtatt ataaggaaat ggcgaggcgg gcggttgagg aaggcggttc gtcttataat 1380
ggtttgaatg agatgataga ggatttgagt gtgtaccgtg ctccagaaaa acaagactta 1440
aactag                                     1446

```

<210> 14

<211> 1488

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 14

```

atggcctttc aaattcaacc agagcttcta aacttcgttt tcataccatt catggcccct 60
ggccactcaa tccctatgat agacttagcc aaattattcg cggaaacgcgg cgtcaacgta 120
acgatcatcg taacacctct taacgcccga cgattcaatt ccgttattaa tcgagccggt 180
gaatcaggac agtccattcg tcttctccaa gtaaaattcc ctggtgaaga agccgggttg 240
ccacctggat gcgaaagcgc cgagacttta ccatcttatg aattgattcc aaattttttt 300
accgcgtaaa aaatgttaca acaaccaatc gaggaagaat tgagaaattt gatcccttta 360
ccaagctgcg tcatltgtga taaacacata ccctggactg ctcaaactg caagaatctc 420
cgaattccga ggataatttt cgatggaatg agctgttttg ctctttagt aacacacgtt 480
ctctacgtgt ctaaggttca tgaaaccgtt cctccaaacg agccgttcgt tgttctgat 540
ttccccgatg agatagagtt aacgaggttt caattgccag ggttgttgaa tccaagtcca 600
aggataaatt tttacgattt tgcgcaacaa gtgaagaaaa ctgaggagga ggcttatggg 660
gtggtggtga acagttttga ggagctggaa aaagattatt tcgagatgtt tcggaaattg 720
aaagggggta aagtttggtg tgttgggcct ttgtcgcttt atggtaacga cgatttggac 780
agggctggaa gagggaataa ggcgtcgatt gatacggatc ggtgtatgaa atggcttgat 840
gatatgaaac cagaatctgt aatttatgcc tgtttgggaa gcctgagtcg tttgtcgcgt 900
tcacagttcg tcgaacttgc tttgggattg gaagcatcaa aacactcgtt tgttctagt 960
gttaaaaccg aaggagagaa gtcgttgga atagagaaat ggattttgga caatggattc 1020
gaggaaagaa cgaaagatag agggttcttg attcgtggtt ggtcgccaca agtgttgatc 1080
ttgtcgcatt ttgcagtggg aggattcttg acgcattgtg gttggaattc gacgcttgag 1140
ggcattttg ctggtttgcc aatgggtgat tggccgatgt tcggcgaaca gtttttgaat 1200
gagaagttag tgggtcagat tttggggacg ggtgtgggag ttggagcgaa aagtacggta 1260
catttggggg atgaagagat ggatgagatg agagtgcga ggaaggggat taccaaggcg 1320
gtcgtggcag ttatggatag aggaactgaa ggggtgtgaga ggcggagaaa ggcaaggag 1380
cttgggtgaa tggctaagag ggcagtccaa gttgggggat cttcatgtaa gaatgtcgac 1440
cagctaattc aagaagttgc accattgagt gtagcgaggg atgtgtaa 1488

```


<210> 15
 <211> 1446
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide construct

<400> 15
 atgggttctc tccctgaaaa tgagctcaac aaaccacatg ctgtgtgcat accctatcca 60
 gcactagggc atttcagtc catgctagat tttgctaagc tcctccacca aaaaggcttt 120
 cacataacct tcgtcaacac cgagtacatc cgtctccgcc tcctcaagtc ctgtggccct 180
 gccgccctgg acgggctacc ggactttcgc ttcattgacta tccccgatgg cctccctttg 240
 tcggacgacg tttcgcgtga tgcgcttcc atttctgtct ctactaacia aacttgctta 300
 gaaccctttt gtgagggtgt atcggacctc atggataatg gttccaaccc gccggtgagc 360
 tgcattgtgt ccgacggggg aatgagtttc acccttgagg cggcggagag gtttgactg 420
 ccagagggtg tgttctggac gcccgctgct tgtggcatct tagctttcac gcagtataag 480
 catcttgtgg agagaggata tgtacctctc aaagatacga gccaggtaac aaatggctac 540
 ctggaacaaa tattagattg gggtccaggg atgaaggata ttcgattgag ggaattccca 600
 actttcataa gaacgacgga cccaaacgac gttatgctgg attttctaataaaaacaagtt 660
 gacgccaccc cgaaagccaa tgctgtgatc atcaacacgt tcgacacatt ggaaagtgc 720
 gctctcaacg cctctctgt catgtttccg cgcatataca cactcgggcc tctccatatg 780
 atgttgaata atcccagggt cgacgaaccc tctaattgcaa tcaaatttaa tctttggaaa 840
 gaagactcac attgcctaga ttggctcgat gtgaacgagc ccggatcagt tgtatacgtg 900
 aattttggca gctcaacaat tctgactgtt gaacaactaa ctgaattagc atggggcctt 960
 gctaacagca agaaaccgtt cctttggatc atcaggcctg atttagtaac tgggtgcatcc 1020
 tccatgcttc cgcctgagtt cctggctcgag actaaagaca gaagcatgtt agtgagttgg 1080
 tgcaaccaag aacaagtgtt gaagcaccac gcgactggag tgttcttgac gcattgtgga 1140
 tgggaattcg cgattgaaag catttgacgc ggcgtgccaa tgatttgttg gccttactac 1200
 gctgagcagc aaaccaactg taggtacagt tgtgtggaat gggaaatagg aatggagatc 1260
 attgacaacg atgtgaagag agatgaggtg gaattgctgg tgattaagtt gatggatgg 1320
 atcaagggaa agaaaatgaa aaagaaagct atggagtggg agaggaaagc agaagaggcg 1380
 gtagcttttg ggggctcttc ctacatgaat ttggataaac ttattagcga cgtgcttttt 1440
 ccataa 1446

<210> 16
 <211> 1458
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide construct

<400> 16
 atggcaggtc caaattgcaa gcctcagccc atcatgatcg cacttcctta ccaaggccac 60
 ataactcctt ttgtcaatct tgcactaaaa cttgcttcca atggctttac aatcactttt 120
 gttcaccttg aatttatcca ccaaattgtt tctaaagccc ataacgccac taaaactgaa 180
 gcagatttat tttcgggaagc acgagaatcc ggtctcgaca tacgttacac aacgattgac 240
 gatggtttcc ctttgggaatt cgacagggct ctccactccg aggagtattg gcactccatg 300
 ttgcgagatt tcccgttaca cgtcgatgag tttgttcgaa aagtcgtgga gtcagagcca 360
 ttttttagagc acttttttggg tacggatact atgtatacat ggcttgcaac cattgcaaaag 420
 aaacataatc ttgtgaatat ttctgttttg actgaaccag cctgggtgtt ttctttgtct 480
 taccatataa accttctgaa gcaaaatggg cattttccat gtaaagaaaa tattgatgag 540
 gaaataaatt acgtaccagg agttgattca ataagtacaa gggatttaat gtcttatttt 600
 aaagaaccag gatcagaaac attagagaaa aatgttgtgc tcaaggcatt tgaaggagtg 660

```

aagaaagctg atttcatctt gcataacaca ttgcaagaac tagaatctga gacactctca 720
gctcttacca aaatgcagcc aaattacgcc gttggaccta ttaatttctc caaacatact 780
cctaaaactg tcaccaagag tctacggtct gaattcgact gcaccaactg gctcgactct 840
aagcctccca actctatctt atacgtctcg tttggtagtt ttattcagac aagcaaagag 900
gtaattgaag aaatcgctta cggctctctc cttagtgaag ttaactttat atgggtggtt 960
agaacagata gtgtgagttt agaggataac gaggttttgc cggttggatt tagggatgag 1020
gttaaagata ggggggtgat agttccgtgg tgtgatcaaa ttacggtttt gtctaatacgc 1080
gcggttggag gattcttgac gcattgtgga tggaaactcg tattagagag tatgtggtgt 1140
ggcgttccta tgatttgta tccgttaaca tatgatcaac ctactaatag gaaactattg 1200
gttgatgatt ggaagattgg cattaatctt tgcgacggag cgttgattaa tagaaaagaa 1260
attgcagaga agattaaggc cttgatgagt gaaagtactt cagagggggt gagggagaa 1320
tctgagaaag ttaagggctt gttgaagaat gcactggaag ttggtggttc atcagagaag 1380
aattttcaata aattttattga ggatttgaag gcaaaaattc aaataatgaa agagcaaagt 1440
cctgctaata ccagttga                                     1458

```

<210> 17

<211> 1443

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 17

```

atgggttcca cagccgaaaa taaacagaaa acccacattg tgtgcatacc ctaccagcc 60
caggggcaca tcagcccat gctaaagtta gccaaactgc tacacaaaaa cggcttttac 120
atcacttttg tcaacacgga gtacaaccac cgccgctca tcaagtcccg cggccccacc 180
gccctcgacg gattgcccga tttccggttc gttacgatcc ccgacgggct tcctttctct 240
gaagccgacg ccacacagga tatcccttct ctttgtgttt caaccaccaa cacttgcttg 300
gagccctttt gcgagctgct gtcgaacctc aataactccg gcccggaagt gccccgggtg 360
agctgcatcg tatccgatgg tgtcatgagc ttcacgttga aggcggcgga gagatttggg 420
ctgccggagg tgctgttctg gacgacgagt gcgtgtgggt tcttggcgta tacgcagtat 480
aagcatctcg tggagaaagg ctatgtaccc ctcaaagata tgagccaagt aacggatgga 540
tatttgaaaa caagcatgga ctggattcca ggaacgaagg acatccaact aagggacttc 600
ccctctttca tcaggacaac agatccagaa gacatcatgc ttaatttttt aatacaagaa 660
actgatgttg tccgagagc caaagctgta ataatacaac ccttcgacat gttagaacac 720
gacgtcctgg aagcgtctct caccatgttt tcacgcgttt acagcatcgg ccctcttcag 780
ctgatgatga attatgttca caacgagtcc cttaaatacca tcagttccag tctatggaaa 840
gaagaaacac attgcgtcga ttggctcgat tcaaaggagc ccgaatccgt tgtgtacgta 900
aatttttgga gcataactgt cgtgactgca gaacaactga ctgagtttgc gtgggggctc 960
gctaatagta agaagacttt cctatgggtt attaggcctg atatagttgc tggagactcg 1020
gctatgctgc cccctgaatt cgtgacgggg acaaaaagata gaagcatgtt aatcagctgg 1080
tgtaaccaag aacaggtgtt gaatcaccca tcaattggag ggtttttgac gcacagtggg 1140
tggaattcga cgattgaaag tatagtcgag ggagttcctg tgatttgctg gcctttcttt 1200
gctgagcagc aaacaaattg taggttcagt tgcgtggaat gggaaatagg aatggagatt 1260
gataataatg tgaagagaga tgaggttgaa gttttggtga gggaaattgat ggatggagag 1320
agggggaaga aaatgaagga gaaagctatg gagtggaaag ggaaagcatt agaggcaact 1380
gcacttgggg gctcttccca cttgaacttg gaaaaactaa ttaaggaggt gcttttgcac 1440
taa

```

<210> 18

<211> 1407

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 18

```

atggcatctt ctccccataa ccagccaacc acgccccgcc acgtggtggc cctaccctac 60
cccgcccgcg gccacataaa ccccatgctc aacatctgca aagccgtagc ggagaagagc 120
agccacatca acataacaat catcctaacc gaggaatggc tcggcttaat cggctcagcc 180
gacaagccgc cgaacataag ctacgcccgcg ataccgaaca ttctgccgctc ggagcacgtt 240
cgcgccgagg atccacatgg tttttgggcg gctgtttggc agaagatgga ggagccggtt 300
gatcggctgc tggacgagct tcggcttaat aataacaagc cggagtgtgt gatagccgat 360
gctttcttgc attgggcggc tgacgtggcg ggcaggagga atattccctt ggcatctgtt 420
tggccaatgt cggcgctccac gttcacgggtg ctttaccact ttgaccttct cgttgaccac 480
ggacactttc cgatcgacat accagtgaat ggagatgcta ttgtggatta catcccggga 540
ctccctccag ttcgcgctgc agattttcca aaagacataa gaaaacaaga agacgcatcc 600
ttcgctcctt aactcattcc caactacca aaattcatca tcttcacttc aatttacgac 660
ctcgaatcca agatcatcga cgctctaaag caaaaatctt ccttctcaat ctacaacatt 720
ggtcctcatg cttcctattc caaactcaaa cacatcctca actcggataa aatcacgaaa 780
cctgatcaag ataacccga ctacttaaaa tgggttagatc tccaacctcc caactccgtc 840
ttgtacattt cactcggcag tttcctatcc atttccgcag cccaaatgga tgaactcgca 900
accggaatac gaaactctgg tgtccgcttt ttgtgggtgg cacgtggcga acaaaaccgg 960
ttgaaagaga tttgttgtga tcatgaaaag gggctgatca tagaatgggtg cgatcaaattg 1020
caggttcttt ctcattcttc ggttgggtgga ttcttgtcgc attgtggttg gaattcgact 1080
aaagaggcgt tgatggccgg ggtgccggtt ttgactattc caattatgtt tgatcaagt 1140
tctaaccgca aggcggctgt ggaagattgg aggggtgggt ggagggtggg gaatgagttt 1200
aatgaagaag agttgggtggg aggagatgag attgcgaata ttgtgaggag gtttatggat 1260
atggaaaatg gtgagaggaa agagttagac aaaaatgtga aagagggtgca gaagatttgt 1320
gcgagagagt tcgaagatgg agatggacag tcgtttgagt ttaatgttga aagtttgggt 1380
caattgattc tgcaattggg tccgtaa 1407

```

<210> 19

<211> 1428

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 19

```

atgaacaaca caacccaaca acaaacagta gcattagcac tagcacctca ctgtttaatc 60
gtccatttcc cattccaagg ccacattaac ccttactcc aattcgccaa acgcctcata 120
actcaccaca acaaaaacct ccaaatcaca ttcgactca ccaattcat cctcaccaac 180
ctctcctccg gtgccggaga atcatccttc tctctccgt caatctccga cggcttcgac 240
gccggcggcc gcgctcaggc caactccggc gccgaatacc tctccaaatt ccgcgagatc 300
ggatctcaaa ccctaaccga acttatccaa gacctatccg aatcgggtcg acccgttgac 360
tgcgtaggtc acgacccgtt cgtaccttgg gccttagatg ttgccaaggg taaattcgga 420
atttcaacgg cggcggtttt tacgcagtcg tgtgcggtgg ataatatata cagtcgggtt 480
tataacggcg atttggagct gccgttgccg gagaatgagg tggtaggtt tccgggtttg 540
ccggagatgg agccgtttga gatgccgagc tttgtgtatt taaacgggtc gtacctcgctc 600
agttttgaga tggttgtggg tcagtttagg aatgttgatg aggcggattg ggtttttgtc 660
aacacttttt atgagttgga gaaagagggtc attgactgga tgtcaaaatc ttggcgagt 720
aaagcaattg gacctaccat accatcaatg tcatggaca agagattgca agaggacaaa 780
tcatacggtc ttagcatgtt caagcataca acaaatgact gcataaattg gctcaacgga 840
aaacaatcaa aatccgtcat ttatgtcgca tttggaagtc ttgcagaatt atcccacgac 900
caaactcaag aactggcaca cgcttaaca acctacgaca aacacttctt atgggttgta 960
cgatcatcgg aagaagctaa gcttcccaaa aattttgcta acgaaacatc taagaaagg 1020

```

```

ttgatagtgt cgtggtgccc tcaattagag gtcttgtcgc acgaggccat cggttgtttc 1080
gtgactcatt gtggttgga ttcaacgctc gagggattga gtttgggggt gcctatggtg 1140
gcgatgccac agtggacgga tcagagtacg aacgctaagt ttatcgtgga tgtttgggggt 1200
gtgggtgttc gggctaaggt ggacgagggg ggattagcga ggcaagatga gatagttcgt 1260
tgcttaggga gcgtcatgga aggggagaac ggagaaaaga taagaaagaa tgccaatgaa 1320
tggaaggaac gggcgtgcaa tgcagttgat gaagggggga gttcagacaa aaatattgaa 1380
gaatttggtta ctacgttgat aagttcccat gacttgcgtc aagagtaa 1428

```

<210> 20

<211> 1425

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<220>

<221> modified_base

<222> (1359)

<223> a, t, c, g, unknown or other

<400> 20

```

atgtctagt agagccaaat aaacttagtg ttcacccctc tccctgtaaa gggacacatt 60
gtctcaacgc tagagacggc aaagctactc gtcgatcgaa acaaacgcct caccatcaca 120
atcctcctca tgaagctgcc agtcgacgcc aagtgatagc attccttcac aaaaaatccc 180
tccctgctctc aaataacttt tgtacatctc cctcgaatcg agcacagttc catggaacca 240
ccgggaactc ccgaatcctt tgtacacagg ttcgtcgaga gccaaaaatg tctcgtaaga 300
gatgcggtgg ttaaagcaac ggaggggtca aaatcaaaca ggctagccgg atttgtaatc 360
gacatgttct gcaccccgat gattgatgtg gccaatgaat ttggcgtccc gacatacgtg 420
gctttcacgt ccggggccgc aactctcggt ctattgttcc atttgcagag tcttagagat 480
gaatttaatc aggacgtgaa ggagtacgag aactcggaag ttgagatata gatcccggtc 540
tatgttaacc cgttcccttc caaatccttg ccgtctcctg tcttcaacga ggacggtgtt 600
tttcttagtc ttgcaaagggt gttcagagag gctaaaggta tattgatcaa caccttttta 660
gaatttgaat cccatgccat taaatcgctc tccaacgatg cgagaatccc gcctgtttac 720
cccatcgggc cagtaattca cgccacggaa gataatgcaa acaaaggaaa gcaggacgaa 780
atcatcgctg ggcttgacga gcaacctgat tcatccgtcg tgtttctttg cttcggaagc 840
gctggatgct ttgaagaaaa tcaagtgaag gagattgcag tggcgctcga caaaagtggg 900
taccggtttt tatggtcatt gagaaagccg cctcccaaag aaaaagcgga gtttccaggg 960
gagtacaaag attttaatga agttttacca gaagggttct tacaacgtac gtccgggaga 1020
ggtaaggtaa taggatgggc tccgcagatg gccgtgttgt ctcacaatgc ggtgggagga 1080
ttcgtgtcgc attgcggctg gaactcgacg ttggagagtg tttggtgcgg agtgccaatg 1140
gccgtgtggc cattggcggc cgagcaacat gcgaacgctg tccagttggt gaaggagttg 1200
ggaattgcgg tggagattaa gatggattat aggaagaaca gtggtgtgat tgtggaggca 1260
aaaatgattg agaaaggaat cagggagttg atggaccggg aaaatgagat aaggggtaat 1320
gtgaaagtga tgaaaaagga gagtaggana gctgtcgtgg atggtgggac ttcttttgat 1380
tacttggatc gttttgttga aactgtcgtg aataatgttt tgtga 1425

```

<210> 21

<211> 1446

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 21

```

atgggttccg tagccggaaa cagttacaaa cggcctcatg ctgtgtgcat acccttcccg 60
gcgcaggggc acatcaaccc catgctgaag ttggcctaac tcttccacca aaagggttc 120
cacatcacat tcgtcaacac agagtacaac caccgcccgt tgctcaagtc cctcggcccc 180
gacgctctcg atggcttgcc ggatttccga ttccgaacca tccccgacgg tcttctcccg 240
tctgacgcgg acgtcactca ggatgttcct tctctttgta tgtccaccac taacacttgc 300
ttggagccct ttaccgagtt gctgttgaaa ctcaataact ccggcccggg cgtgccaccg 360
gtgacctgca tcgtctcggg tgggtgtcatg agcttcacat tgaaggcggc ggagagggtt 420
gcgctgccgg aagtgtgtgt ctggacgacg agtgcggtg gtttcttggc gtacacgcag 480
tataagcgtc tcttgagaaa aggctatgtc cctctcaaac atatgagcca gttaacaaat 540
agctatctgg aaacaaccct cgactgggtt ccaggaatga aggatatccg attaaggga 600
ttcccatcat tcatcaggac aacggatcca aaagacatca tgtacaattt cgtattacaa 660
gaaaccgcag ctgtctccag agccaaagct ctgatcatca acacctttca tacattggaa 720
cacgacgttg taaatgccct ctccaccatg tttccacgtg tttacaccat cggctctctt 780
cagctgatgt tggaccaagt tcatgacaag agccttaacg ccatcaactc caatctcttg 840
aaagaagaat cgcaatgcat cgattggctc aattcaaaaag agcccgaatc cgttgtgtat 900
gtgaatttcg tcttggtcac tgtgtgtact gctcaacaac tgacggaatt tgcgtggggg 960
cttgcgaaac gcaacaagac ttttttatgg gttattaggg ctgatatagt tgttgagac 1020
tcggcaatgc tgccccctga attcttgacg gacacggaag acagaagcat gctaataagc 1080
tgggtgaacc aagaacaggt gttgaggcac cctccatccg gaggattttt gacgcacagt 1140
gggttggaaact cgacgcttga aagtattgtc agcggagtgc ctatgatatg ttggcctttc 1200
tttgctgagc aacagacaaa ttgtaggttc agttgcgtgg aatgggaaat aggaattggag 1260
attgacaata atgtgaagag agatgaggtt gaggtgctgg tgagagagtt gatggatgg 1320
gaaaagggga agaaaatgaa gaagaaagct atggagtggg agatgaaagc agaagcagca 1380
gctgccccctg ggggaccttc gtcttttaaa ttggaaaaac ttattgagga ggtgcttttg 1440
caataa
1446

```

<210> 22

<211> 1308

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 22

```

atgaaggctc atgcagtgat gcttccttgc cccgtacaag ggcaactaaa tcctatgctg 60
aaactggcca aaatatgtga ttcaagaggg ttcttcatca cattcgtgaa cacggaattc 120
aatcacaatc gtctagtgcg tgcgagaggg cccgaatctg ttaaagggtc cgatgatttt 180
cagttcaaaa ccataacctga tggactaccg ccttttgata aggacgcaac gcaagacata 240
cctcaactgt gtgattctct tcaaaaagaat ggtcttcctc cattgttgga cctcattaaa 300
agtattaatg attcaccgga ctgtccaaat gttacctgta tagtgattga tttggccatg 360
agtttcgctc ttgatgcggc cgaggtgttc aaaattccca cgggtgtact ttcgccaaact 420
agtgtttgtg gattcatggg gttttgcaat tatgaagagc ttgtgaatcg aggattgttt 480
ccacttaaaag atgaaagtca aataactaat ggctatcttg ataccaaact agactgggtg 540
ccagggatga agaacattag gctcagagat ttctctagtt tcatccgaac catgatcca 600
gatgatatca tgggtgaactt catgattttt aacatgaaga atgcccctcg tgcaaaggct 660
gtggtagtca acacattcga tgaattggag aaagatgtat tggaggccct aagtaaaaaa 720
tttgatcatg ttttttccat aggccactc caattgatgg agaaggcttt ccaaaagcct 780
gaggtaaaat ctataggatc aagcttgttg aaagaagaca acacgtgcat cgcctggctc 840
aacggcaggg agccaaatc tgtgttgtag gtgaactttg gaagcatcac agtgttgtca 900
cctcaacaac tattggagtt cgcattgggg cttagccaata gcaaccatta ctttttgttg 960
atcataaggc cagatttggt aagtggagaa tctgcgattt tatccgaaga gtactcaaa 1020
gaagttgaag ggcgggagat gatgggtgct tgggtgctctc aagagcaagt attggcccat 1080
ccttcggtag gtggattctt gacacattct ggctggaact cgactatcga aggaatgtca 1140

```

```

gaagggtgttc ctatgatttg ttggcctttt tttgctgacc aacagaccaa ttgtcggtat 1200
gcatgcacgg agtgggagat tggaaatggag attgaaggag aggttacgag ggataaagtg 1260
gcggtatttg tgaaaatatt gatggaggag ggaaggggag agcgatga 1308

```

<210> 23

<211> 1506

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 23

```

atggccattc atgaacaaaa acctcacttt gtccctgttcc ctttcatggc acaaggccat 60
atgattccca tggtagatat cgccagatta ctgcggaagc gcggtgtcac aatcaccatt 120
ctactcacac cccacaatgc caacagggtc aaaacagtca ttgctcgtgc aatcgattca 180
ggactaaata tcaatgtcat ccacttcaaa tttccatccg ttgaggtcgg attgcccgaa 240
ggttgtgaga atttcgatat gtccttgac atcaatggcg cattgcagtt tttcaaagcc 300
actttcatgt tacaagaaca ggtcgaagag ttgcttccaa agctcgagcc tcttccgagc 360
tgcctaattg ctgatatttg ctttccatgg acaacaaatc ttgctttgaa gttaaatgtt 420
ccaagaattg tgtttcacgg gacaagttgc ttttctctcc tatgtatgca cgtttttagga 480
acttctaagg atttcgaagg tgtgactaac gaaacggagt acttccttgt gcctggatta 540
ccagataaaa tcgaaataac caaaattcag cttaggggca cccttattca aatgaattca 600
gactggacga agtttcgtga tgaggtgcca gaggtgagg taaaagcatt tggaacggtg 660
gccaatactt ttgaagattt ggaaccagag tatgtcaaag aatacagcag agttaaaggc 720
aaaaaagtct ggtgcatagg tcctgtttca ttatgcaaca aagatggcat agacaaggcc 780
gaaagaggta acatggcttc aatcgacgca caccattgct tgaagtggct caattcacac 840
gaacaaaagt ctgttattta cgtctgcctt ggaagcatat ctgcctcgc tacttcacaa 900
ctgatagagc ttggattggc tttagaagca tcaaacagac cttttatttg ggtagttaga 960
gatccatcac aagaacttaa aaaatggttt ttgaatgaga aatttgagga aagggtaaag 1020
gatagaggcc ttttgatcaa cggttgggag cctcaagtgc tcatactttc ccatccatct 1080
gttgaggagg ttgtaacgca ctgcggctgg aactcgatgc ttgaaggggt tacttcaggc 1140
ttgccgatga taacgtggcc tgtatttgct gagcagtttt gtaatgaaaa gtttatttgt 1200
cacgtgatca agactgggat aagagtgggt gttgaagtgc ctatcatctt tggagatgaa 1260
gaaaaagtcg gagtttttgt gaagaatgat gagataaaga tggttataga taagttgatg 1320
gatggaggag aagagggaga agagagaaga gagagagctc aaaagcttgg agaaatggca 1380
aaaaaggcaa tggaggaggg tggttcttct tatcataatt tgacatcggt catgcaagat 1440
gtcatgatgc aacaagctaa taatggagat caatatgaag atggtgttac agttataaat 1500
acatga 1506

```

<210> 24

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 24

gggggatcca tggctagtga gagccaaata

30

<210> 25
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 25
 cccctcgagg gtacctcaca aaacattatt cacgac 36

<210> 26
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 26
 atgggagaag aatacaagaa aaca 24

<210> 27
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 27
 taaaatttgg tagttaaacc gatgta 26

<210> 28
 <211> 1386
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide construct

<400> 28
 atgctgagcc tcgccaaaat tctgcaccaa aagggattcc atatcacttt cgttaacact 60
 gaatttaacc atgaacgcct cctgagaacg agaggcccga attcccttga cgggttgccct 120
 tcgtttcgat tcgagacaat tcccgcggt cttccgccat cagaccccga tgctacacaa 180
 aacgttgcat tattgtttga gtccagcaca tccaaatgct tagctccatt cagggacctt 240
 cttgctaagc taaaccacac cgacgtgccg ccagttactt gcatactatc cgacttaatc 300
 atgagcttca ctcttgaagc tgctcaagag ctcagcatcc ctgatgtcct tttttggacc 360
 gctagcgctt gtggatacct cgcttatgca cactatgccca cgcttattga aaaaggattt 420
 acacctttca aagatacgag ttgcttgacc aatgggtatt tggataccgt tattgatgat 480
 attcctagtc tggaaggcat acgtctgaga gacattccaa gttttatcag aacaactaat 540

```

ccagatgaca ttttgatgaa ctttgtgttg cgagaaacag agagagctag aaaagggttcc 600
gccgtaatct ttaacacggt cgagtgcctc gaggttgaag cattaaacgt actttcatcc 660
atgttgccctc cagtttacac agttggaccc ctgcatttgg ttgaaaagca tgttgggtcac 720
aaaggattgg aggtgcttgg atcaaattta tggaaagaag agccaaaatg tctcgaatgg 780
cttgactccc aaattcccaa ctcagtgggt tacgttaatt ttggaagcat cgctgtcatg 840
acaactgacc aactgattga gttttcttgg ggtcttgcta atagcaacat atccttcttg 900
tggattataa gacctgacct tgtctcaggg gaaaacgctg ttcttccacc cgaatttctc 960
gaagccacaa aagaaagagg gtgttttagca aattgggtgcc ctcaagagaa agttcttagc 1020
caccatcca tcagaggatt cttaaactcac agcggatgga attcaactct tgagagcatt 1080
tgcagtggag ttccaatgat cagttggccg ttcttcgccc aacaacagac taactgttgg 1140
ttttgctgca caaaatgggg cataggcata gagctagaca atgatgtcaa aagggaataa 1200
gtggaagacc ttgtgcgcga attgatgtct ggggataaag ggaaagagat tatgaaaatg 1260
gctatggagt ggaagaagct ggccgaagag tctgccaga gttcatcttt taagaatcta 1320
gagaaagtga ttcatgaagt gcttttacca ccactacaag tgtgggatcc taaggattcc 1380
acctaa
1386

```

<210> 29

<211> 1374

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 29

```

atggaggaca ctatcgttct ctacgcttca gcagagcacc ttaactccat gctactactc 60
ggcaaaactca tcaacaaaca ccacccaca atctccgtcg ccattatcag caccgccccca 120
aacgccgcgc ctagtctcgt cgccgacgtg gcggccatat cttatcagca actcaaaccg 180
gccactctcc cttcggatct aacaaaaaac ccaatcgagc tcttcttcga aatcccacgt 240
ctacataatc ctaacttgct cgaagcgctg gaagaactgt cactaaaatc aaaagtaagg 300
gcatttgtga tagatttctt ttgcaatccc gcatttgagg ttctgactag cttgaacata 360
cccacttact tctatgtcag cagcggcgcg tttgggctat gcgggttctt gcattttccg 420
acaatcgacg aaactgtcga aaaagacatc ggtgaactga acgatatctt ggagatcccg 480
ggttgcccc cggttttgtc ctcggtttt ccgaaaggta tgttctttcg caagagtaac 540
acttacaagc attttttaga cacggcgaaa aacatgagga gagcgaaagg gatcggtgtg 600
aacgccttcg acgcgatgga gttccgagct aaagaagccc tcgtcaacaa tctgtgcgta 660
cccaattcgc caactcccc agttttctta gtcggcccat tggtcggagc aagcacaaact 720
acgaaaacca caaacgaaca gcacgaatgc ttgaaatggc tggacgtgca gccagacaga 780
agcgtgatct tcttatgttt cggtaggagg ggtttgttct ccgcagacca attgaaggaa 840
atcgcaattg gtctggagaa cagcggccac aggttctctg ggtccgtgcg ttgccacca 900
agtaagccta actcttataa cactgatccg gacctggacg agctcctgcc cgaggggttt 960
ttgtccagga ccgagacccg gggtttcgtg atcaagtcgt gggcgctca gaaggaggtg 1020
ctgagccatg gcgcggttgg agggttcgtg acgcactgtg ggaggagtgc gatattggaa 1080
gcggtgtcgt ttgggggtgcc gatgatcggg tggccgatat acgcggagca gaggatgaat 1140
aggggtgttc tgggtggagga gatgaagggt gcgttgaggt tggatgaggt ggaggaaagg 1200
ttcgtggcgc cgggtggaatt ggagaagaga gtgaaggagt tgatggattc gaagaatggg 1260
agagcggtta ggcagagagt gaaggagatg aaagtggcgg ctgaggtggc ggttgaaaag 1320
ggtggttcgt cagttgtggc gttgcaacgc tttgttgata tggtggtttc ttaa
1374

```

<210> 30

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 30

```

atggaggcag acaaagaaaa tctcaagatt ttaatgttcc catgggttggc tcatgggtcat 60
atattttccat ttcttgagct agccaaaaga atcttgaagc gaaaaaactg gcacatatatac 120
ttgtgtacca cagccataaa cttcagttct atcaacaact tcattgaaaa atataagttg 180
gagaactcaa tagaagtagt agaactccat atagaacccat cccctgaact tccacctcat 240
taccacacta caaagaattt gccacaagt ctcaattcta ccctattaaa ggccattcag 300
acgtcgaatt cgagcttctc agacatcatc agaacattga aacctgaact agtgatata 360
gatgtgtttc aaccttgggc tgccaagatt gcttcctcac aagggtattcc tgctgtttat 420
ttttctagct ttggaggggc accattatca cttatgcac atcaccacac gtacggaaaa 480
cccgaatttc ctttccaagc aatagttgtt gaggacatcg aactggaaag tttgctctct 540
ttgtttgatt tcttgtatgc caacatattt gaagtggatc aagattatct ttttgggaat 600
ttcaagcaat cttgtgagct tgttttgtta aagagtagta aagggattga gaggaagtac 660
atcgattatc ttcatcttt gtctcagaaa aaaatattac ctgttggacc actagtcaca 720
gttgacaata agaccaatga ggagaattcc gagatcatga attgggtgag caagaaaaaa 780
caccattcaa ctgtctacat ttcttcgggt agtgaatact tctgtctaa agaagagatt 840
gaagagatag caaaagggtc tgagctttgt gatgttaact ttatatggat catcagattt 900
ccagttggag tgaccgttaa cttagaagaa aactgcctc aaggtttctc tcaaagggtg 960
aacgaacggg ggatggttgt ttcaggatgg gcaccacaga gcaacatatt agcacatcca 1020
agcacaggag gctttgtgag tcaactgtggg tggagtctta tcacagaaag cgtatatattt 1080
gggtttccgg tcatagggat ggcaatgaaa cttgatcagc caataaacgc cagaatgtta 1140
tcagaggctg gtagttgtgt cgaagtcaaa agatatgaaa atgaagtgtt taggggagaa 1200
gagatagcga aggcgataaa gaaggtgatt gttgaggaca gtggagaaag gctgcgga 1260
agagcttttag aattgagcga gaagatgaaa atggaaggag aaaatgagat ggatgaagta 1320
actgagcagc tgtgggagct ttgcttgacg aaaaaacggt aa 1362

```

<210> 31

<211> 1437

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide construct

<400> 31

```

atggaacctc atatatgttat attcccgttc atgtccaaag gccacacaat ccctctctctc 60
cacctctccc acctctctct tagtcgcgga gtacgcgtaa cgatcttcac cactgcacaa 120
aaccaccctt tcatcgctca acatgtccca aaaacaaata atgttaccat cattgacctta 180
ccgttccctg ataacatccc tggaatttca ccaggaaagg agagcacgga caaactcccg 240
tcgatgtctc tcttcgtccc gttcgtgaac gccgctaaat cgatgcaacc gttcttcgaa 300
gatgagcttg agaaaattca ttcaggggtt agttgtgtta tatcggatgg tttcttctcat 360
tgagcgtcga aatcagcatc caagttcgga attccacgac tgagtttcta cgggtatgagc 420
tactatgcct tgacaatttt tgcagtcgct atctcaaaca agttaatatc attgcacgag 480
tcaccgcacg aggcattcac cttacctagt tttccttggg ttaaaactcac tagagatcac 540
ttcgacaaac cacttgatca acgtgaacca aatgggtccgc aatttgactt tttcatggaa 600
gcaacgacag ctactgtgaa tagctatggg ttcttagtga atagcttcta tgagcttgaa 660
ccaactttcg cggattacta tgacaacaat taaaaaccca aggcgtggag tgtcgggcct 720
ctctgcctcg cacaaacgcc aaagaatgat aatctctcgt cgaagcctga gtggattcat 780
tggtttgacc aaaagttgga acaagatcgc cctgttttgt acattgcatt cggatcacia 840
gcagaaatta cactagaaca gttacatgaa atctcacgag ggttggaaag gtcaaata 900
cactttttgt gggttttaag gaacaattga gttgaactaa gtgatggatt tgaagacagg 960
gttaagaata gaggaattgt agtaaaagaa tgggttgatc aaagagagat tcttgaacat 1020
gaaagtgtaa aaggctttct aagtcattgc ggctggaatt cggtaatgga aggtatatgt 1080

```

```

gcggaggttc tgattcttgc gtggccaatg atagcggagc aacacttgaa tgcaaagatg 1140
gtgagtgaag aaataaagat tggtttgaga gttgaaacgg ttgatggaac ggcaaaggga 1200
tttgtgactg cggcgagttt gacgaaggcg gtgatggaat tgatggaggg tgagaagggg 1260
aaggaattga gggagaatgt gaagaaagtg gcggggggcag cgaggggaagc ggtggtggaa 1320
ggtggttcgt cgtggaatgg tttgaatgaa ctcatgatg aggtgtgtag gcataaggaa 1380
atgagtggta gttctaaagt tgatgaaaac aagagggaaa ttaaggatat taattaa 1437

```

<210> 32

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 32

cccatgggag aagaatacaa gaaa

24

<210> 33

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 33

ggtacctata aaatttggtg gttaaa

26

<210> 34

<211> 1080

<212> DNA

<213> Homo sapiens

<400> 34

```

caccgattac atgacgtaca tgttcaagta cgacagtgtt catggtcagt ggaaacacca 60
cgagttgaag gtacaggatg agaagaccct tctgtttggt gaaaagccag taagagtctt 120
gtcaactggt gtcttcacgg acaaagataa ggctgctgct cacttgaagg gtggtgccaa 180
gaaggttgtg atctcagcac caagcaaaga tgcaccaatg tttgttgtgg gtgtcaatga 240
gaaggaatac aaaccagagt tggacattgt ttccaatgct agttgcacta ccaattgcct 300
tgcccccttg gccaaaggtca ttaatgatag atttgggaatt gttgagggcc tcatgaccac 360
cgtccactct attaccgcaa ctcaaaagac tgtcgatggg ccatcgagca aggactggag 420
aggtggaaga gctgcatcgt tcaacattat ccccgagcag actggtgcag ctaaggctgt 480
tggtaaagtg ctcccagttc tcaatggaaa gctaacggga atggccttcc gtgttcctac 540
tgtcgatgtc tccgtagtgg acctcactgt caggctcgag aaagaggcca cttatgatga 600
gatcaaagct gctatcaagg aggaatccga gggcaacctt aagggcattt tgggctatac 660
cgaagatgat gtggtgtcaa cagactttgt tggatgatag cgatcaagca ttttcgatgc 720
caaggctgga attgcattga gcaagacggt tgtgaagcgt gtgtcggtgt acgacaacga 780
atgggggttac agttcccgtg tgatcgacct gatcgtgcac atggcctcag tttctaaggc 840
ttgatcgatg atctgcttag gccgtgaagc agcttttgtc ttatcgcatc ttttctgagt 900
ttgtaataat gggcttttgt gttatttgca gcctaatttt gcagtttgca aatttatggt 960
tttttggttat gttttgctga aacctatttt attacccttt cgcgttgggt tattgaatgt 1020
gaactctttt tactgatgtg tttaacgttc tctcttttaa aaaaaaaaaa aaaaaaaaaa 1080

```

<210> 35
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 35
 tgttgctgtt aacgatccat 20

 <210> 36
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 36
 agctcttcca cctctcca 18

 <210> 37
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 37
 atgttcaaaa atcctaatat ccgc 24

 <210> 38
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 38
 ttagccatca agctcaatct tgaca 25

 <210> 39
 <211> 16
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 39

aacagctatg accatg

16

<210> 40

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 40

gctttaccat ggagtaatga gctt

24

<210> 41

<211> 1367

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic nucleotide construct

<400> 41

```

gtatgtatgt atgtatgcta tatacgagtc gataaagtgt atcgttttca ttttcgacaa 60
atacaaacct cgtgagagaa tcttctcgat catatggcac gagcaggacc actaaccta 120
acttcgctag cgctcgagaa atcgctgcat gaaaagttta taaggagcga agacgagagg 180
cctaacttag catacgatca atttagcagt cagattccat tgatctctct ctctgggac 240
gacgatgaat gtaataagag gaaagagctg tgcaagagaa tagcgcaggc atgcgaagat 300
tgggggtattt ttcaagtgat cgatcatggg atcgatttga aactcgtcaa cgatatgact 360
cgtttggttc gtgagttctt cgatttgccc gacgaagaga agctgagggt cgatatgtct 420
gggtgggagaa aaggagggtt cattgtttcg agccaccttc agggcgagggt ggtccaagac 480
tggcgcgaga tcgtgacctt cttcacatac cctatcaaag gccgtgacta ttccctgtgg 540
cccgacaagc ccgaggcatg gcgggcccgtg acagagacct acagctcgca gctaattgtc 600
ctgggctgca aattgctagg aatcctatcc gaggcaatgg gcctcgaaag agaagcgtg 660
accaaggcct gtctgaacat ggaccacaaa gttgtggtca acttttacct aaaatgcct 720
cagcccaatt tgacattggg cctgaagagg cactcggacc caggtttgat cactctgctg 780
tttcaggata acgttggcgg gcttcaagcg actcgagacg gcgggaagtc gtggatcacg 840
gtccagcccc ttgagggtgc attcgtggtc aatcctggtg attttgctca ttacttgagc 900
aatggaagggt tcaagaacgc ggatcatcga gcggtggtga attcaaacac gaatagaatg 960
tcgatcgcca cgtttcaaaa cccatcgcca gaggctatcg tgtaccctct caagatcgga 1020
gacgacggga agcccattat agaaaagccc atcacttatg gagaaatgta caagaggaag 1080
atggctaaag acattgaact tgccaagctc aagaagctag ccaaggaaca aaagttgcaa 1140
gaagaagttg ttaataatgt tgaagatcat catcttaaca atgggaaaac taaataggag 1200
gttaagggtct ttaaggaaac tgacgttggtc ttgtgattgt tatatattct ctatgtcgta 1260
ttcgtcttaa gggtgtcaga tgaaaatatc gaccatgtta ggtatttaat ttatatgaat 1320
tgtattgcct agtcggccat attatgatta aaaaaaaaaa aaaaaaa 1367

```

<210> 42
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 42
ttctctgtcg acgcccattg cc

22

<210> 43
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 43
cgccgtgtcg actcgcttga ag

22

<210> 44
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 44
aattatttcc caatgttcaa aaat

24

<210> 45
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 45
tggagcttta ggtttgtgaa a

21

<210> 46
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 46
 atgggagaag aatacaagaa aac 23

 <210> 47
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 47
 tcttacgata aaacaaactc a 21

 <210> 48
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 48
 atcatcgagc ggtggtgaa 19

 <210> 49
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 49
 tggccgacta ggcaatacaa t 21

 <210> 50
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 50
 cccttctgtt tggtgaaaag cc 22

<210> 51
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 51
cctcggattc ctccttgata gc

22

<210> 52
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 52
cccatatata gccatggaag ataccatcg

29

<210> 53
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 53
tagtggttg gagtcggggg atttcg

26

<210> 54
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 54
aatgggatgc ttccgacttc t

21

<210> 55
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 55
 cagtggtttc tgccattgct t 21

 <210> 56
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 probe

 <400> 56
 aggaaaaaac aggctgaaaa 20

 <210> 57
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 57
 catcgagcgg tggatgaatt 19

 <210> 58
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 58
 ctggcgatgg gttttgaaa 19

 <210> 59
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 probe

<400> 59
aaacacgaat agaatgtcg 19

<210> 60
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 60
gaagatgacc ttgcggtgat tt 22

<210> 61
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 61
ttgtcctctt cccctttata ggttt 25

<210> 62
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
probe

<400> 62
agttcgccgg gagtttcgtg agtctg 26

<210> 63
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 63
ggttggcccg catttca 17

<210> 64
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 64
tagaaaaccc tccggcagaa

20

<210> 65
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
probe

<400> 65
agatggactt aaatgcg

17

<210> 66
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 66
gcattgagca agacgtttgt g

21

<210> 67
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 67
acgggaactg taacccatt c

21

<210> 68
<211> 18
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic probe

<400> 68

agcttggtgac gtggtacg

18

<210> 69

<211> 2220

<212> DNA

<213> *Linaria bipartita*

<220>

<221> CDS

<222> (127)..(1488)

<400> 69

tggacactga catggactga aggagtagaa ataccaaaag ttttcaaact ctttattgca 60

atatacttgt acaaactctac tgcaactaaa acctattatt aattatatat ataccatata 120

atagat atg gaa gat acc atc gta ttt tac act cca agc gat cac agt 168

Met Glu Asp Thr Ile Val Phe Tyr Thr Pro Ser Asp His Ser

1

5

10

caa ccc aca ata gcg ttg gca aag ttc atc agc aaa cac cac cct tcc 216

Gln Pro Thr Ile Ala Leu Ala Lys Phe Ile Ser Lys His His Pro Ser

15

20

25

30

atc tcc atg aca atc atc agc acc gcc gca ttc cct tcg tcc gca gcg 264

Ile Ser Met Thr Ile Ile Ser Thr Ala Ala Phe Pro Ser Ser Ala Ala

35

40

45

gtg ctg cct aaa aca ata agt tac cac ccc ctc ccc gcc gtg ccc atg 312

Val Leu Pro Lys Thr Ile Ser Tyr His Pro Leu Pro Ala Val Pro Met

50

55

60

ccc ccg aac ctc tcc tcc aat ccc gtg gaa ttc ctc ttc gaa atc ccc 360

Pro Pro Asn Leu Ser Ser Asn Pro Val Glu Phe Leu Phe Glu Ile Pro

65

70

75

cga ctc cac aac act aaa ctc cgc gaa gca ctc gaa aga atc tcc gag 408

Arg Leu His Asn Thr Lys Leu Arg Glu Ala Leu Glu Arg Ile Ser Glu

80

85

90

aca tca aag atc aag gcg ttg gtt atc gat ttc ttt tgc aac tcc gct 456

Thr Ser Lys Ile Lys Ala Leu Val Ile Asp Phe Phe Cys Asn Ser Ala

95

100

105

110

ttc gaa gtt tcc agg agc ttg aac att ccg aca ttc ttc gaa gcc agc 504

Phe Glu Val Ser Arg Ser Leu Asn Ile Pro Thr Phe Phe Glu Ala Ser

115

120

125

ctc ggc gcg tcc ggg ctc tgc gag ttt ctc tac cac ccg aca ttt cac 552

Leu Gly Ala Ser Gly Leu Cys Glu Phe Leu Tyr His Pro Thr Phe His

130

135

140

aaa acc gtc ccc gga gac atc gcg gac ttc aac gac ttt ctt gaa atc	600
Lys Thr Val Pro Gly Asp Ile Ala Asp Phe Asn Asp Phe Leu Glu Ile	
145 150 155	
ccg ggg tgc cct ccg ctt cac tcg gct gat gtc cct aag ggt ttg ttc	648
Pro Gly Cys Pro Pro Leu His Ser Ala Asp Val Pro Lys Gly Leu Phe	
160 165 170	
cga cgc aag act att gct tac aaa cac ttc ctc gac act gcc aac aac	696
Arg Arg Lys Thr Ile Ala Tyr Lys His Phe Leu Asp Thr Ala Asn Asn	
175 180 185 190	
atg cgg atg tcg agt gga atc ctc tta cac gcg ttc gat gcg ctt gaa	744
Met Arg Met Ser Ser Gly Ile Leu Leu His Ala Phe Asp Ala Leu Glu	
195 200 205	
tac cga gct aag gaa gct ttg tcc aac ggc ttg tgc aat ccg gac ggg	792
Tyr Arg Ala Lys Glu Ala Leu Ser Asn Gly Leu Cys Asn Pro Asp Gly	
210 215 220	
cca act ccg cct gtt tac ttt gtt tcg cct act gtg gct gaa aca ttg	840
Pro Thr Pro Pro Val Tyr Phe Val Ser Pro Thr Val Ala Glu Thr Leu	
225 230 235	
gca tac agg gaa aac acc gcc gcc ttg cgg cat gaa tgc ttg acg tgg	888
Ala Tyr Arg Glu Asn Thr Ala Ala Leu Arg His Glu Cys Leu Thr Trp	
240 245 250	
ctt gat ttg cag cct gat aaa agc gtt atc ttc ctt tgt ttt gga agg	936
Leu Asp Leu Gln Pro Asp Lys Ser Val Ile Phe Leu Cys Phe Gly Arg	
255 260 265 270	
agg gga aca ttc tcc atg caa cag ttg cat gaa att gct gtc ggt ctt	984
Arg Gly Thr Phe Ser Met Gln Gln Leu His Glu Ile Ala Val Gly Leu	
275 280 285	
gaa cgg agc ggg cga aga ttt ctc tgg gcc atc cgc agt agt ggg gca	1032
Glu Arg Ser Gly Arg Arg Phe Leu Trp Ala Ile Arg Ser Ser Gly Ala	
290 295 300	
ggg aac ggt gag cct gac ttg agc gtg gtg ctg ccg gag ggt ttc ttg	1080
Gly Asn Gly Glu Pro Asp Leu Ser Val Val Leu Pro Glu Gly Phe Leu	
305 310 315	
gag aga acc aaa gat att ggg ctg gtg ata acg aca tgg gcg ccg cag	1128
Glu Arg Thr Lys Asp Ile Gly Leu Val Ile Thr Thr Trp Ala Pro Gln	
320 325 330	
aaa gag gtg tta agc cat gtg gcc gtg tgt gga ttt gtg acg cac tgc	1176
Lys Glu Val Leu Ser His Val Ala Val Cys Gly Phe Val Thr His Cys	
335 340 345 350	
ggc tgg aac tca gtt ctc gag gcg gtg tcg ttt ggg gtt ccg atg att	1224
Gly Trp Asn Ser Val Leu Glu Ala Val Ser Phe Gly Val Pro Met Ile	
355 360 365	

```

ggg tgg ccg ctg tac gca gag cag agg atg aat cgg gtg ttt atg gtg 1272
Gly Trp Pro Leu Tyr Ala Glu Gln Arg Met Asn Arg Val Phe Met Val
          370                      375                      380

gag gaa ata aag gtg gca ttg cct ttg gag gag gag gcg gat ggg ttg 1320
Glu Glu Ile Lys Val Ala Leu Pro Leu Glu Glu Glu Ala Asp Gly Leu
          385                      390                      395

gtg agg gcg aca gaa ttg gag aag cgg gtg aga gag ttg acc gag tcc 1368
Val Arg Ala Thr Glu Leu Glu Lys Arg Val Arg Glu Leu Thr Glu Ser
          400                      405                      410

gtg agg gga aaa gcg gta agc cgg cgg gtg gag gaa atg aga ctc tcg 1416
Val Arg Gly Lys Ala Val Ser Arg Arg Val Glu Glu Met Arg Leu Ser
          415                      420                      425                      430

gca gag aag gcc gtg agc aag ggt gga acg tcg ctg att gca ttg gag 1464
Ala Glu Lys Ala Val Ser Lys Gly Gly Thr Ser Leu Ile Ala Leu Glu
          435                      440                      445

aaa ttc atg gac tcg att act cta taagcgtaag agttgctata aatttagcta 1518
Lys Phe Met Asp Ser Ile Thr Leu
          450

tgttgcacgg atacgtcaaa taaaccttgc tcgtattctt agatacgtat actatacaaa 1578

tacaatttat gaataagttt ttcatatggc gtatgaagta ttctaattaa attaaataac 1638

acgttttgaa gcgttattat aagggcgtaa ctagtaaata ataagaaata attaaacaaa 1698

aaaaaattat gatgttaatg ataattttat taatatttta tactataaag ttcttaatat 1758

tcttgttgat atgtaagttt attatataag tattttaagt gttttatttg gtattttgaa 1818

tttaagtacc atcgtggaat acttttatat gagcttataa ttttaagtgt gaatagattt 1878

catattaata tgttattatt tatgtgaaca aaaaatatta ttgctcaagt tattttgaat 1938

tatattttta tatatataag tatttgatat aaaatattta acgtattatg tgcgtatcct 1998

tattttacaa agttaccgt attcgtttca tgtttgatac attttttcat attcgtatat 2058

gtgcccgtgt ccgtgcaata tagtaaatta gttatggtat gtgatgtttc tatgttgtaa 2118

caaaataatg gtacttaatt tgaatagtc agtcaagtat ttgtaatggt aaattaatat 2178

tccatttaat attcattat tctctcaaaa aaaaaaaaaa aa 2220

```

<210> 70

<211> 454

<212> PRT

<213> *Linaria bipartita*

<400> 70

```

Met Glu Asp Thr Ile Val Phe Tyr Thr Pro Ser Asp His Ser Gln Pro
  1              5              10              15

```

Thr Ile Ala Leu Ala Lys Phe Ile Ser Lys His His Pro Ser Ile Ser
 20 25 30
 Met Thr Ile Ile Ser Thr Ala Ala Phe Pro Ser Ser Ala Ala Val Leu
 35 40 45
 Pro Lys Thr Ile Ser Tyr His Pro Leu Pro Ala Val Pro Met Pro Pro
 50 55 60
 Asn Leu Ser Ser Asn Pro Val Glu Phe Leu Phe Glu Ile Pro Arg Leu
 65 70 75 80
 His Asn Thr Lys Leu Arg Glu Ala Leu Glu Arg Ile Ser Glu Thr Ser
 85 90 95
 Lys Ile Lys Ala Leu Val Ile Asp Phe Phe Cys Asn Ser Ala Phe Glu
 100 105 110
 Val Ser Arg Ser Leu Asn Ile Pro Thr Phe Phe Glu Ala Ser Leu Gly
 115 120 125
 Ala Ser Gly Leu Cys Glu Phe Leu Tyr His Pro Thr Phe His Lys Thr
 130 135 140
 Val Pro Gly Asp Ile Ala Asp Phe Asn Asp Phe Leu Glu Ile Pro Gly
 145 150 155 160
 Cys Pro Pro Leu His Ser Ala Asp Val Pro Lys Gly Leu Phe Arg Arg
 165 170 175
 Lys Thr Ile Ala Tyr Lys His Phe Leu Asp Thr Ala Asn Asn Met Arg
 180 185 190
 Met Ser Ser Gly Ile Leu Leu His Ala Phe Asp Ala Leu Glu Tyr Arg
 195 200 205
 Ala Lys Glu Ala Leu Ser Asn Gly Leu Cys Asn Pro Asp Gly Pro Thr
 210 215 220
 Pro Pro Val Tyr Phe Val Ser Pro Thr Val Ala Glu Thr Leu Ala Tyr
 225 230 235 240
 Arg Glu Asn Thr Ala Ala Leu Arg His Glu Cys Leu Thr Trp Leu Asp
 245 250 255
 Leu Gln Pro Asp Lys Ser Val Ile Phe Leu Cys Phe Gly Arg Arg Gly
 260 265 270
 Thr Phe Ser Met Gln Gln Leu His Glu Ile Ala Val Gly Leu Glu Arg
 275 280 285
 Ser Gly Arg Arg Phe Leu Trp Ala Ile Arg Ser Ser Gly Ala Gly Asn
 290 295 300
 Gly Glu Pro Asp Leu Ser Val Val Leu Pro Glu Gly Phe Leu Glu Arg
 305 310 315 320
 Thr Lys Asp Ile Gly Leu Val Ile Thr Thr Trp Ala Pro Gln Lys Glu

				325				330				335			
Val	Leu	Ser	His	Val	Ala	Val	Cys	Gly	Phe	Val	Thr	His	Cys	Gly	Trp
340				345				350							
Asn	Ser	Val	Leu	Glu	Ala	Val	Ser	Phe	Gly	Val	Pro	Met	Ile	Gly	Trp
355				360				365							
Pro	Leu	Tyr	Ala	Glu	Gln	Arg	Met	Asn	Arg	Val	Phe	Met	Val	Glu	Glu
370				375				380							
Ile	Lys	Val	Ala	Leu	Pro	Leu	Glu	Glu	Glu	Ala	Asp	Gly	Leu	Val	Arg
385				390				395				400			
Ala	Thr	Glu	Leu	Glu	Lys	Arg	Val	Arg	Glu	Leu	Thr	Glu	Ser	Val	Arg
405				410				415							
Gly	Lys	Ala	Val	Ser	Arg	Arg	Val	Glu	Glu	Met	Arg	Leu	Ser	Ala	Glu
420				425				430							
Lys	Ala	Val	Ser	Lys	Gly	Gly	Thr	Ser	Leu	Ile	Ala	Leu	Glu	Lys	Phe
435				440				445							
Met	Asp	Ser	Ile	Thr	Leu										
450															